

# **The Need for Computer Scientists to Receive Training on People Skills.**

Tom Jackson and Ray Dawson

Loughborough University  
Tom\_Jackson@Bigfoot.com

*Universities currently take some steps towards preparing their students for the real world, but fall short when it comes to people issues. Through the use of case studies, the paper shows that students may encounter problems with the people they meet. A general lack of competence on technical matters and an inability to seek help, accept advice or admit they are wrong may be found in the graduate's new employers. This may be compounded by a work atmosphere of misunderstanding, lack of communication and mistrust.*

*While a sandwich year experience is undoubtedly worth while, it cannot be an excuse for the universities to omit any teaching of people skills. The paper identifies that there is clearly a need for universities to put a greater emphasis on people handling skills in computer science and other courses. Students need to learn firstly, how to recognise the types of people problem they encounter, secondly, how to assess the risks of their actions in dealing with these people problems, and thirdly, have strategies for handling the problems and risks they encounter.*

## **People Factors**

Papers before have shown how students specifically have had trouble dealing with frequent changes to specifications, priorities, equipment, procedures and the expectations of customers, managers, and fellow team members to “do the impossible yesterday” (1,2). Though all of these are proven points not enough time is being spent on people issues at university. All the above problems involve people and how they are structured within organisations, so it is important that students have lessons in handling people issues for when they arrive into industry.

Though students learn many factors about organisations and how they are structured there is no substitute for ‘real’ experience, as most experiences within organisations are unique. All businesses have a common factor of wanting to survive in the market place; this is passed onto all the employees who must do well if they are to survive in their job and progress within the company. Employees set out in different ways to achieve survival at the work place and this can lead to an interesting state of affairs, especially if an employee feels threatened by graduates.

The people issues within industry opens up a whole New World as each individual is looking to get something different out life and their job. The types of employees at a company will determine what sort of ‘rat race’ a student will enter into. When a graduate joins a new company there might be resentment and fear from current employees who never had the opportunity to go to university or feel their job might be threatened by this new up to date graduate. The problems can start to arise when a graduate tries to move on within the company by suggesting better ways of implementing practices and concepts or tries to introduce new ideas. The resistance starts when current employees feel undermined or threatened by the students’ new concepts. The employee doesn’t want to ‘lose face’ by admitting they maybe wrong especially if better alternatives are being suggested by a graduate.

## **CASE STUDY 1**

The author has experiences with a company who has nineteen branches and over 470 employees based in the UK. The company has grown phenomenally fast during the last few years to become one of the top organisations within its industry. Due to their rapid growth the company has encountered problems along the way. The

unusual combination of events make these problems unique to that company, however in a more general sense each individual problem would not be unusual in a medium size company of this type.

The rapid growth of the company has led to some of the original employees within the company reaching senior positions even though they may not have any more knowledge or experience than existing and new employees within the organisation. This environment has led to the following problems for the author who is a new graduate at the company.

### **1. The lacking of general competence of senior staff**

The company had a hierarchical structure that evolved and became flat, not through choice but by the sheer nature of the types of employee's employed at the organisation. In the majority of organisations hiring and internal promotions are part of everyday business. There were certain factors that brought about change, such as the growth of the company being too fast and the hiring and promoting of unsuitable and under qualified staff for particular positions.

A good example of this became apparent when the company introduced the new position of IT Director. The company wanted to employ from within, "better the devil you know than the devil you don't". As the company wants to float shortly after the year 2000, it was deemed necessary to have an IT presence on the board of directors. It was decided the current company secretary who has an accounting background would be best suited for the job as the employee had been loyal and with the company for a long period of time as well as showing some knowledge within the IT field. The problem was that this employee and others in the organisation found themselves in a position where they had not the expertise or experience to handle the major decisions required. The consequences of these decisions affect the whole company and a new graduate will suffer as much as any other employee.

Another aspect of a lack of competence is that a new senior employee will feel the need to show fellow colleagues that he or she is worthy and knows what to do in the position. A lack of experience can lead the employee to bring in the latest equipment to prove this. However, in trying to show that the employee is 'on the ball' their introduction of the latest technology might not even be relevant or beneficial to the company. A good example of this was demonstrated at the company where there was an ill-advised haste to adopt ISDN communication between sites. This was an expensive decision that has never been properly justified by either the communication requirements or the requirements in the foreseeable future.

### **2. The inability of senior staff to seek advice**

One problem associated with a person promoted to a position where their competence is limited is that they feel they must earn their position. This means they can be reluctant to admit their inexperience and seek advice from other authorities despite a need to do so (5). This can lead to very questionable decisions that can have far reaching effects.

An example of this can be found in the company which until recently had over 150 mobile phone users, the cost of these was rising exponentially. A cost cutting solution had to be found. Without any research into cost cutting solutions it was decided in days that all the service engineers would have their mobile phones replaced by pagers. When the service engineers had mobile phones they would receive their next service call via the phone. When the service engineer has finished the call they would ring the service desk for the next call or the service desk would phone them. With the service engineers now having pagers, they have to receive directions to their next call in 128 characters or less and have no direct access to the call centre to say they finished the job. On the surface it might seem like the cost of mobile phones has been cut, but the inadequacy of pagers and the lack of research into other ways of communication, such as SMS (short message service), means the company has ended up spending more on this solution.

A better solution could have been found if the focus wasn't on trying to keep up to date with technology and showing a front where it appears the employee has all the answers to all the questions. The problems occur for students when the proposed solution goes wrong. Though one manager prepared the solution, the whole department is affected by it. A new graduate employee can find it difficult to make any progress in this environment.

### **3. The reluctance to take on new concepts**

One aspect of a person in a senior position needing to make decisions about which they are inadequately prepared is that they are reluctant to listen to their subordinates, especially when that involves a new “know it all” graduate. The senior staff will inevitably feel vulnerable in this situation and will not, therefore, take kindly to what they believe is an upstart view from someone who has little industrial experience, no matter how good the graduate’s ideas may be in reality. It was a graduate’s suggestion, for example, that SMS should be considered to reduce the cost of the mobile phones but this option was never even considered.

A further example of this reluctance to accept ideas from graduates occurred when it was pointed out that by changing the way the software operates within the company a saving could be made of up to £45,000 a year on communication costs. After the concept had been put forward there was resistance to the idea, as nobody likes change and the feeling, “how can he be right, he’s only just come into the company”. The result was that the idea was dismissed without any serious consideration.

### **4. Refusing to “Loose Face” by admitting mistakes**

The resistance to new ideas starts when current employees feel undermined or threatened by the new concept. A manager doesn’t want to ‘lose face’ by admitting they are wrong. This is particularly significant if it involves changing from a current implementation introduced by that manager to one suggested by someone lower in the organisation. For the company to carry out a u-turn in the implementation of the software would mean they would have to admit they were wrong. This is seen as losing face rather than saving the company substantial amounts of money, and for a senior manager who may already feel vulnerable because of his lack of knowledge such a loss of face cannot be contemplated no matter how damaging this may be to the company(6).

This can be very demoralising for a new graduate. Although the graduate may be prepared to accept that a senior person may not adopt their ideas if it can be shown that there are good technical reasons for not doing so, for ideas to simply be ignored is both frustrating and unsettling. This could lead to the graduate losing confidence in their own knowledge.

### **5. Reluctance to be honest and give out information**

The feeling of vulnerability of the senior management can lead to particular problems for researchers in the organisation. One of the authors agreed tasks was to examine the IT costs within the company. Although the IT director had set up this project in the first instance, there was a notable change in attitude when information was being sought in more sensitive areas. Information on areas where some of the more questionable decisions had been made in the past is always “not ready to hand right now”. This renders the research difficult, if not impossible in these sensitive areas, yet these are precisely the areas where the research could possibly produce the most useful findings.

### **6. The trust by other employees that they must be right**

If promoting a long standing employee fills a senior position or an employee has been in that position for some time, there is a danger that their judgement on decisions may no longer be scrutinised in other functions within the company. Employees start to feel that an employee must be trusted, “he’s been here a long time therefore he must be right”, or “he’s been here a long time therefore he must know what he’s doing”. The employees can perpetuate this in their own self-belief, ie. “I’ve been here a long time therefore I must be right”. This is a false sense of security and can be very damaging to a company.

An example of this was the first task for the IT director set by the current board of directors with their limited computer knowledge, which was to buy new cost effective software that would integrate between functions of the organisation. After travelling the world in search of this software, the IT director decided on a particular

package. The software was bought with no questions asked because of the lack of IT knowledge within the company and the trust put within the IT director because he had been there for a long time and therefore must be right. The software decision has turned out to be very costly for the company with regards to monetary overheads and the lack of usability. The software package was doomed from the start as it still contains original coding from when it was first released in 1974, which makes it antiquated, hard to use and very difficult to adapt. This led to a difficult environment for all employees including the new graduate, however, because of the reasons given above the original decision was deemed to be beyond question, especially if the questions came from the graduate.

## **7. The lack of respect by junior staff for their superiors**

The rapid promotion of certain staff to senior positions within an organisation can lead to difficult internal politics. Other staff will be particularly jealous of their managers if they feel their own abilities exceed their superiors. This can lead to resentment, and a bad atmosphere within the company. This can then adversely affect a new graduate. The poor working atmosphere can lead to demotivation and low moral and the graduate may even find employees with the attitude, "I don't think much of my manager so I don't think much of those he recruits". A lack of communication inevitably results when employees do not trust the competence of their superiors. This can then lead to further difficulties for any new employee in finding out how the company operates and will generally make it hard for that employee to gain acceptance by his or her colleagues.

## **CASE STUDY 2**

One of the authors had an industrial year out in 1996 as part of the degree course at Loughborough University, with a large international based company. The company was based in 79 countries and had 23,000 employees. The author was placed into a large project based in London involving one of the largest high street banks. The project consisting of three stages, involving developing a new branch counter application to enable counter staff to process transactions more efficiently. The first stage of the project involved computerising the way deposits and payments were handled. The second stage added the functionality of being able to deal with cards and the final stage enhanced back office processing.

When the author arrived on the scene, completion of stage one was already a year late. This was due to technical problems and constant requests to change the format of the application. After six months on the project, stage one had started to be used in the branches with constant feedback from them regarding changes required of the application. Whilst stage one was in development stage two was about to be coded and stage three was in the analysis / design phase.

Within the real world changing circumstances are inevitable. The bank had taken over one of its rivals and there became the need to cope with European Monetary Union, and the resulting change in priorities led to stages two and three becoming cancelled. However, stage one had to continue otherwise the bank and the international company developing the software would lose face.

What this example illustrates is that psychological issues exist not just for individuals but for organisations as a whole. The inability of the corporation to admit it had made a mistake and that it would be better to scrap its investment in the project meant that employees had to deal with inadequate and inappropriate software, a situation in which any new graduate will find it difficult to progress.

## **How can the University accommodate the people problems?**

From these examples it is easy to see how important it is to have people skills, and that every student really requires knowledge of psychology to be effective in an organisation. Students when leaving university should feel comfortable about joining an organisation and being able to cope with the types of employees and problems they are likely to come up against. This would get their career off to a good start and also reflect well on the university.

Universities currently take some steps towards preparing their students for the real world. Course modules and projects try to simulate industry, through trying to emulate industry-based projects or through case studies. Though universities have modules in place which go a long way to helping a student adapt to industry, they only take into account the traditional problems, such as the forever changing user specification, group work or

changing time scales (1,2) or bring in other professional issues such as marketing (3), health and safety (4) or the law(4). For the last 15 years, Loughborough University's Department of Computer Studies has run group project courses of this type in the second year of the undergraduate programme (1). However, the people issues tended to be restricted to customer attitudes and practices. The authors know of no university which handle the people issues encountered by employees within their own organisation other than the interaction between members involved in-group work.

The course content is a factor that universities have to address. Though a course should still be academic an increasing part should reflect the 'real world' and in particular the people issues that may be encountered. In an increasing customer-dominating world it is important for universities to take into account why a student actually comes to university. The majority of students who come to university want to increase their chances of getting a better job. The universities that can offer a course that's industry backed because of its promotion of "real life" skills will undoubtedly find an increase in student applications due to industry having an influence on the student's decision. Students should be made aware of the types of situations they may encounter and how to deal with them to make the most out of their career.

The students that the company finds are best adapted to industry are those that already have industrial experience, usually from an industrial year of a sandwich course (2). It is important that universities try to bring some of the experiences from the industrial year into course modules to make students become more effective and employable. Students that have had a year out already have an awareness of a real world environment and will have encountered sufficient people problems to at least give them some skills and awareness to deal with the situations they encounter. They will have some experience of dealing with individuals and often within the company itself, and are far more prepared for integration into a working department on graduation (2). However, a sandwich year experience will not necessarily prepare a student for every problem they are likely to encounter. Even with the experiences they do encounter it does not necessarily teach them the best way of handling the situation. While a sandwich year experience is undoubtedly worth while, it cannot be an excuse for the universities to omit any teaching of people skills.

There is clearly a need for a greater emphasis on people handling skills in computer science and other courses. However, it is less clear what form of teaching would give the necessary skills. Students need to learn firstly, how to recognise the types of people problem they encounter, secondly, how to assess the risks of their actions in dealing with these people problems, and thirdly, they need to have strategies for handling the problems and risks they encounter. A possible way forward would be to introduce dedicated modules of case studies to demonstrate to students how varying people problem scenarios can be recognised, assessed and handled. While it would be impossible to cover every type of problem that could be encountered such a module could generally build awareness and skills that could be adapted to new situations as they arise. Such a teaching programme is clearly a matter for further research.

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